

REMARKS

Claims 1-32 remain in the application. Reexamination and reconsideration of the application are respectfully requested.

Claims 1-32 were rejected under 35 U.S.C. 103(a) as being unpatentable over Shirasaki USP 6,185,040 in view of Miron USP 7,002,696. Claims 33-38 were rejected under 35 U.S.C. 103(a) as being unpatentable over Shirasaki in view of Miron and Ranalli USP 6,285,500. The rejections are respectfully traversed.

Finality of Office Action

As an initial point, Applicants respectfully submit that the finality of the subject Office Action is premature and therefore request withdrawal of that finality, pursuant to Section 706.07(d) of the MPEP. Section 706.07(b) of the MPEP states that:

The claims of an application for which a request for continued examination (RCE) has been filed may be finally rejected in the action immediately subsequent to the filing of the RCE (with a submission and fee under 37 CFR 1.114) where all the claims in the application after the entry of the submission under 37 CFR 1.114 (A) are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114, and (B) would have been properly finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to the filing of the RCE under 37 CFR 1.114.

and

Further, it would not be proper to make final a first Office action in a continuation-in-part application where any claim includes subject matter not present in the earlier application.

In the present situation, the Amendment accompanying the RCE amended the language of all independent claims, claims 1-3, 5-7, 9-14, 33 and 36, by the addition of language requiring that a variable reflectivity surface vary in reflectivity along its length, with claims 33 and 36 further amended to require a second input beam establish a region of spatial overlap of the optical delay line beams and that a two-dimensional photo detector array spatially operate on the beams in the

regions of spatial overlap. Thus, the amendment to the claims necessarily redefines the invention such that the claims are not drawn to the exact same invention claimed in the application prior to the entry of the Amendment. Instead, as would be expected by the revised claim language, the Examiner has applied new grounds of rejection to which Applicants have not had an opportunity to respond. See *In re Kronig*, 539 F.2d 1300, 1302 (CCPA 1976) ("the ultimate criterion of whether a rejection is considered 'new' in a decision by the board is whether appellants have had fair opportunity to react to the thrust of the rejection").

The conditions set forth in § 706.07(b) of the MPEP have not been satisfied. Accordingly, for that reason alone, as well as the Office's policy of compact prosecution, the finality of the final Office Action should be withdrawn.

Rejection of Claims 1-32 Under 35 U.S.C. §103(a)

Claims 1-32 were rejected under 35 U.S.C. 103(a) as being unpatentable over Shirasaki USP 6,185,040 in view of Miron USP 7,002,696. The rejection is respectfully traversed for the reasons set forth in the Amendment Under 37 CFR 1.111 filed September 3, 2008 and incorporated herein in its entirety. As detailed therein, the claims are directed to methods and systems comprising a number of elements in combination. Amended claim 1, for example, is directed to a transmitting system comprising a processor, an integration lens, an optical fiber and a variable reflectivity surface. The variable reflectivity surface varies in reflectivity along its length and is configured to impart a desired amplitude profile onto the output taps.

In contrast to the rejected claims, Miron fails to disclose or suggest a similar combination of elements. Miron fails to teach or suggest a combination including a variable reflectivity surface that varies in reflectivity along its length and is configured to impart a desired amplitude profile onto output taps. There is no teaching or suggestion in Miron or in any other cited reference of a combination including a variable reflectivity surface that varies in reflectivity along its length.

In response to these arguments the Examiner now states that:

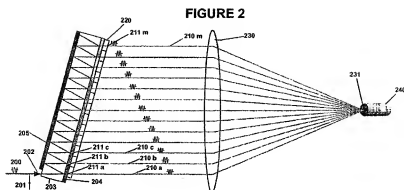
Regarding applicant's amendment and subsequent argument that Miron fails to teach a surface having a variable reflectivity that varies in reflectivity along its length, the examiner disagrees. As noted in the amended office action, Miron clearly provides a variable reflectivity surface that varies in reflectivity along its length in that, as previously noted, the spacing between the reflective layers is variable thereby allowing adjustment to the optical path difference (OPD) which is an even multiple of the elementary optical path difference (EOPD) and further allows control over optical intensity of the output beams (column 7 lines 1-10). Furthermore, the variable reflectivity surface can be broadly considered as being variably reflective along its length being that the light which propagates the length of the reflective surface encounters reflective materials which vary from fully reflective to partially reflective to fully reflective to partially reflective, etc.

Office Action of November 26, 2008 at pages 8-9.

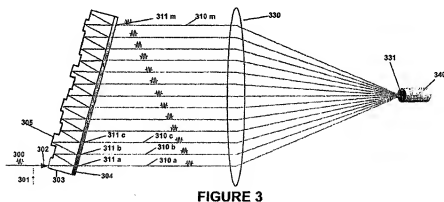
However, a review of the cited portions of Miron does not support the Examiner's position. Having a variable spacing between reflective layers is not the same as the layers or their surfaces having the claimed variable reflectivity surface which varies in reflectivity along its length. To hold otherwise is to ignore the language of the claim.

Applicants' claims include combinations of elements including surfaces having the claimed variable reflectivity surface which varies in reflectivity along its length. A full description of such a combination, including a variable reflectivity surface that varies in reflectivity along its length, is found, for example, in paragraphs 50 and 56 taken together with Figures 2 and 3 of the present application:

[0050] ...The reflective coating of surface 204 preferably varies in reflectivity along its length, with high reflectivity at the start and decreasing along its length, so as to ensure equal intensity of the exiting beams. The reflectivity may also vary such as to impart any other desired amplitude profile onto the beams.



[0056] The reflective coating of surface 304 varies in reflectivity along its length, with high reflectivity at the start and decreasing along its length, so as to ensure equal intensity of the exiting beams. The reflectivity may also vary such as to impart any other desired amplitude profile onto the beams.



The rejected claims clearly describe a combination in which a variable reflectivity surface varies in reflectivity along its length. This is different from opposing optical planes, one of which is “totally reflective” and the other “partially reflective” or even having a distance between the planes adjustable so that there may be control over the optical intensity of an output beam. Contrary to the Examiner’s position, this claim language is not satisfied by a configuration in which light propagates between surfaces of partially and fully reflective materials.

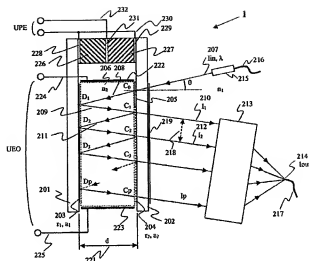


Figure 2a

With reference to Fig. 2a of Miron, 203 is described as a “totally reflective layer” while 204 as a “partially reflective layer.” Neither is described as having a variable reflectivity that varies in reflectivity along its length. Miron simply fails to describe, suggest, or otherwise teach any variable reflectivity surface that varies in reflectivity along its length, i.e., the length of the surface. To hold that this is equivalent to having light propagate between layers of different reflectivity simply ignores the clear language of the claims and is otherwise baseless and improper. In as much as the Examiner recognizes and acknowledges that “Shirasaki fails to specifically teach ...that the reflective surface is variable and varies in reflectivity along its length” (Office Action at page 4), it is clear that the combination of Shirasaki and Miron also fails to teach a combination including this feature for the reasons present above. Accordingly, the rejection of independent claims 1-3, 5-7 and 9-14 is improper and should be withdrawn.

Insofar as Shirasaki and Miron, singularly or in combination with each, do not disclose or suggest the subject matter of independent claims 1-3, 5-7 and 9-14, and insofar as the dependent claims rejected under 35 USC §103 all depend from one of these base claims, it follows that claims 4, 8 and 15-32 are also all allowable.

Rejection of Claims 33-38 Under 35 U.S.C. §103(a)

Claims 33-38 were rejected under 35 U.S.C. 103(a) as being unpatentable over Shirasaki in view of Miron and Ranalli USP 6,285,500. The rejection is respectfully traversed for the reasons set forth in the Amendment Under 37 CFR 1.111 filed September 3, 2008 and incorporated herein in its entirety, for the reasons present above in connection with claims 1-32, and for the reasons that follow.

As described above, the art of record, singularly or in combination, fails to describe or suggest a combination including a variable reflectivity surface which varies in reflectivity along its length and which is configured to impart a desired amplitude profile onto the output taps. The addition of Ranalli fails to cure this deficiency.

Further, as detailed in the previous Amendment, claims 33-38 recite a combination including a second input beam which projects at an angle to a plane of the optical tapped delay line linear array to interfere with each optical tapped delay line beam and establish a region of spatial overlap of the optical tapped delay line beams, and a two-dimensional photo detector array arranged to sample the interfering beams and spatially operate on the beams in the regions of spatial overlap. An example of this embodiment is described in paragraph 65 of the present application, in which two illuminations on the photo detector are tilted in phase as a result of the separation of two illumination sources such that the interference between them produces a single cycle of a spatial carrier across the four detector rows. This spatial carrier allows the detection of the complex correlation value.

A similar combination is neither disclosed nor suggested in Ranalli. Ranalli fails to teach or suggest using the interference of light. Ranalli solely uses the polarization differences to operate on the light, passing two light beams through the same space but with differing propagation directions so that they become spatially separable upon exit. In contrast, independent claims 33 and 36 and the claims dependent therefrom spatially operate on the light in the region of spatial overlap,

thereby taking advantage of the interference. A similar combination is neither disclosed nor suggested in Ranalli.

In response, the Examiner asserts:

Regarding the newly added limitations dealing with spatial overlap, the examiner initially notes that Shirasaki discloses this limitation via disclosure of interfering collimated light 136 in Figure 7. Shirasaki, as previously discussed, also discloses the two-dimensional photodetector array which clearly operates on the beams in the regions of spatial overlap. Furthermore, the examiner maintains that the Ranalli reference allows the taps to interfere being that, as noted by applicant, the taps occupy the same position in space. As to applicant's assertion that the beams in Ranalli do not interfere since they are orthogonal, the examiner notes that Ranalli specifically teaches that:

"Beam combiner 44 creates two identical sets of superimposed wavelength channels (1s, 2p) incident focusing lens 46. By superimposing each of the s-polarized wavelength channels with its corresponding p-polarized wavelength channel, each superimposed wavelength channel includes the information payload from the first fiber wavelength channel (1s) and the second fiber wavelength channel (2p). Lens 46 focuses each superimposed wavelength channel onto its respective liquid crystal switch cell 22 to thereby combine the two identical sets of information into one superimposed wavelength channel incident on switch cell 22."

In other words two optical wavelength signals having the same polarization occupy the nearly the same position in space, which, according to applicant produces interference. Furthermore, interference by definition is the superposition of two or more waves resulting in a new wave pattern. This is clearly the case in Figure 5 of Ranalli.

Office Action at pages 9-10.

However, contrary to the Examiner's assertion that the "two optical wavelength signals [have] the same polarization" and thus interfere, the cited portion of describes "superimposing each of the **s-polarized** wavelength channels with its corresponding **p-polarized** wavelength channel", i.e., optical wavelengths of **different** polarizations with p-polarization being light polarized in the plane, s-polarization being light polarized **perpendicular** to the p-polarized light.

As Ranalli, singularly or in combination with Shirasaki and/or Miron, fails to teach or suggest the combination of independent claims 33 and 36 and the claims dependent therefrom

including spatially operating on the light in the region of spatial overlap the rejection of claims 33-38 is further improper.

For the reasons presented above, claims 33-38 are allowable over the applied art and withdrawal of the outstanding rejection of those claims is respectfully solicited.


Summary

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark Office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no. 509622000700.

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Respectfully submitted,

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